

Financial Math

Income Tax

CPP-at age 18

EI

vacation pay 3%

10.90/ hour student(Jan 18 - 13.15)

11.60/ hour at age 18 (Jan 18 - 14.00)

education and health care- paid by income tax

servers wage- make less because of tips (9.90) under 18- \$8.60

how to make money make money?

-Interest

-stocks- mutual fund

-bonds-4% for a set term Ontario Government

-RESP 2500 contribution limit - match at 20%

-debit account .004%

savings account 1.4 %

TFSA's-\$5500 -no interest no penalty

Dec 18-8:16 AM

Simple Interest

-calculated on amount
invested ONLY

$$I = Prt \quad \text{Where;}$$

I = the interest
earned

P = principal invested

r = annual interest rate

t = time in years

Jan 10-9:42 AM

GICS guaranteed investment certificates

Logan has \$4000 to invest in a GIC which pays 3.5%/a over 5 years.
Calculate the interest she will earn.

$$I = Prt$$

I = ?

P = 4000

r = 0.035

t = 5

Substitute

$$I = (4000)(0.035)(5)$$

$$= 700.00$$

Logan has earned \$700 in interest over the 5 years.

A = P + I

$$= 4000 + 700$$

$$= 4700$$

A = annuity
(investment)

Jan 10-10:12 AM

GICs

guaranteed investment certificates

Hannah has \$4000 to
invest in a GIC paid

3.5%/a over 5 years.
compounded annually

$$A = P(1+i)^n$$

$$= (4000)(1+0.002917)^{60}$$

$$= 4000(1.002917)^{60}$$

$$= 4000(1.1910)$$

$$= 4764.37$$

5 x 12 = 60

A = annuity ?

P = principal
investedi = interest rate
n = # of times it gets compounded

The interested earned is

\$764.87. Compound vs. Simple

Interest earns \$64.87 more over
the 5yr term.

Jan 10-10:12 AM

p 459-461

#2b, 4cde, 7 9, 11

p 468-470 q 4, 8, 18

p 476-478 q 6, 8, 11, 12

$$A = P_0(1+i)^n$$

$$I = Prt$$

Jan 10-10:46 AM

A donor gives \$50 000 to the high school he graduated from. The amount must be invested for 3 years, and the accumulated interest will be used to buy books for the library. If the money earns 7.75%/a compounded monthly, how much will be available to buy books?

$$A = P(1+i)^n$$

A = Annuity (Investment)

P = principal (balance)

i = Interest rate

n = Number of compound periods

May 11-8:00 AM

A donor gives \$50 000 to the high school he graduated from. The amount must be invested for 3 years, and the accumulated interest will be used to buy books for the library. If the money earns 7.75%/a compounded monthly, how much will be available to buy books?

$$A = P(1+i)^n$$

A = Annuity (Investment)

P = Principal (balance)

i = Interest rate

n = Number of compound periods

May 11-8:00 AM

Compounding Periods

$$\text{Daily} = 365$$

$$\text{Monthly} = 12$$

$$\text{Annually} = 1$$

$$\text{Weekly} = 52$$

$$\text{Bi-weekly} = 26$$

$$\text{Bi-monthly} = 24$$

$$\text{Semi-annually} = 2 \text{ mortgages}$$

$$\text{Quarterly} = 4$$

Jan 10-10:43 AM

Opener

A donor gives \$50 000 to the high school he graduated from. The amount must be invested for 3 years, and the accumulated interest will be used to buy books for the library. If the money earns 7.75%/a compounded monthly, how much will be available to buy books?

$$A = P_0(1+i)^n$$

$$A = 50000(1+0.00646)^{36}$$

$$A = 50000(1.261)$$

$$A = 63044.14$$

There is \$13 044.14 to buy books at the end of 3 years.

May 11-8:00 AM

$$A = P(1+i)^n$$

A = Annuity

P = Principle

i = Interest rate

n = # of compounding times

Solve for the value of P

$$P = \frac{A}{(1+i)^n}$$

Present Value of an investment to yield a certain amount of money

May 11-8:03 AM

Ex 3 p 474

Tony has \$3000 in his savings account. He intends to buy a laptop computer and printer and invest the remainder for 2 years, compounding monthly at an annual interest rate of 3%. He wants to have \$2000 in his account 2 years from now. How much can he afford to spend on the laptop?

May 11-8:07 AM

Ex 3 p 474

Tony has \$3000 in his savings account. He intends to buy a laptop computer and printer and invest the remainder for 2 years, compounding monthly at an annual interest rate of 3%. He wants to have \$2000 in his account 2 years from now. How much can he afford to spend on the laptop?

May 11-8:07 AM

$$A = P(1+i)^n$$

$$P = \frac{A}{(1+i)^n}$$

$$P = \frac{2000}{(1+0.0025)^{24}}$$

$$P = \frac{2000}{(1.0025)^{24}}$$

$$P \approx \frac{2000}{1.06175 \dots}$$

$$P = 1883.67$$

$$\$3000 - 1883.67 = 1116.33$$

He can afford to spend \$1116.33 on a laptop and printer.

May 11-10:03 AM

Cody invests \$5000.00 in an account at 5%/a compounded monthly. What is the investment worth after 6 years?

$$A = P(1+r)^n$$

$$A = ?$$

$$P = \$5000$$

$$r = 0.05/12 = 0.004167$$

$$n = 6 \times 12 = 72$$

$$A = 5000(1.004167)^{72}$$

$$A = 5000(1.3425)$$

$$A = 6712.92$$

Jan 10-10:35 AM

p 477 q 6-13

14 diagram p 478 reading formulas

May 11-8:10 AM

Dec 7-9:56 AM